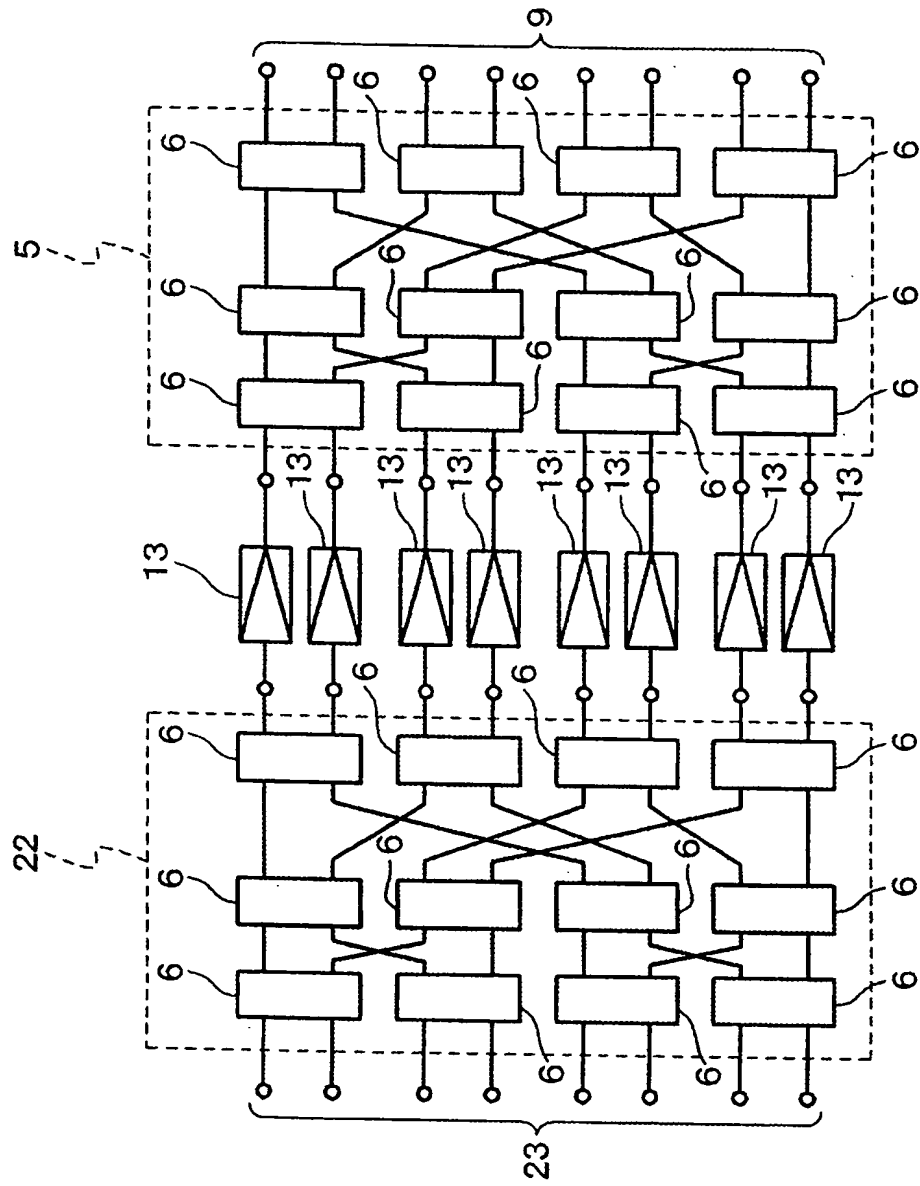
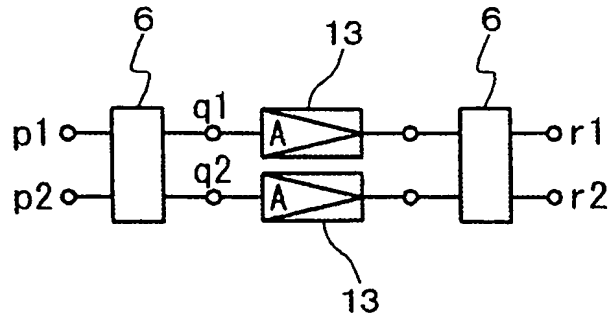


Fig. 1
PRIOR ART



F i g . 2
P R I O R A R T



$$q1 = p1 \cdot \frac{1}{\sqrt{2}} e^{j0^\circ} + p2 \cdot \frac{1}{\sqrt{2}} e^{-j90^\circ} \quad \dots (7)$$

$$q2 = p1 \cdot \frac{1}{\sqrt{2}} e^{-j90^\circ} + p2 \cdot \frac{1}{\sqrt{2}} e^{j0^\circ} \quad \dots (8)$$

$$e^{-j90^\circ} = \cos(-90^\circ) + j \sin(-90^\circ) = -j \quad \dots (9)$$

$$\begin{aligned} \begin{pmatrix} r1 \\ r2 \end{pmatrix} &= \frac{A}{\sqrt{2}} \begin{pmatrix} 1 & -j \\ -j & 1 \end{pmatrix} \begin{pmatrix} q1 \\ q2 \end{pmatrix} \\ &= \frac{A}{\sqrt{2}} \cdot \frac{1}{\sqrt{2}} \underbrace{\begin{pmatrix} 1 & -j \\ -j & 1 \end{pmatrix}}_{\text{output side matrix}} \underbrace{\begin{pmatrix} 1 & -j \\ -j & 1 \end{pmatrix}}_{\text{input side matrix}} \begin{pmatrix} p1 \\ p2 \end{pmatrix} = -jA \begin{pmatrix} p2 \\ p1 \end{pmatrix} \quad \dots (10) \end{aligned}$$

Fig. 3
PRIOR ART

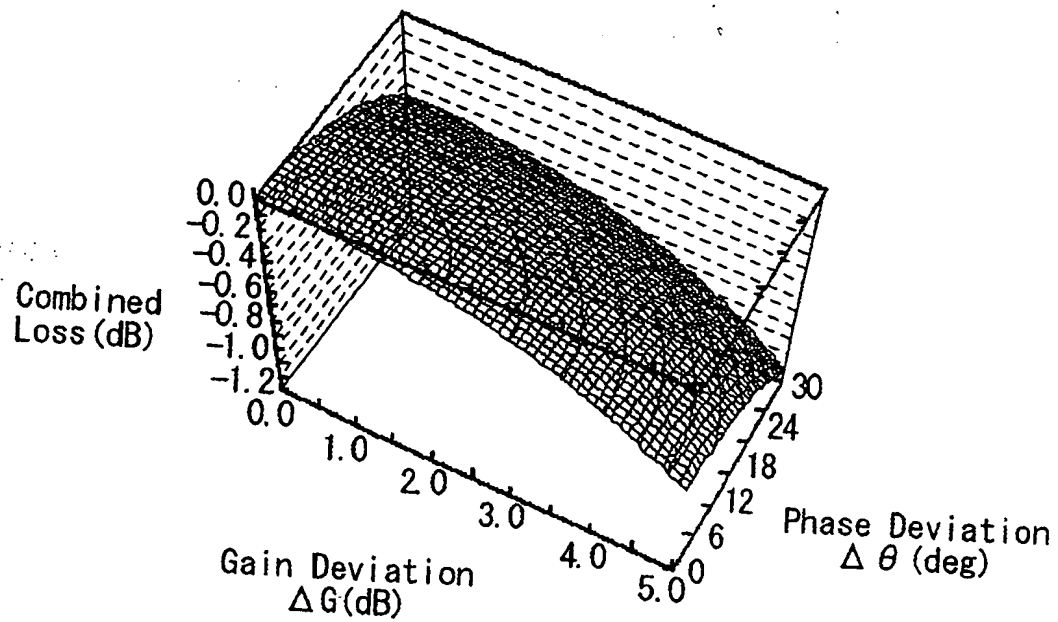


Fig. 4
PRIOR ART

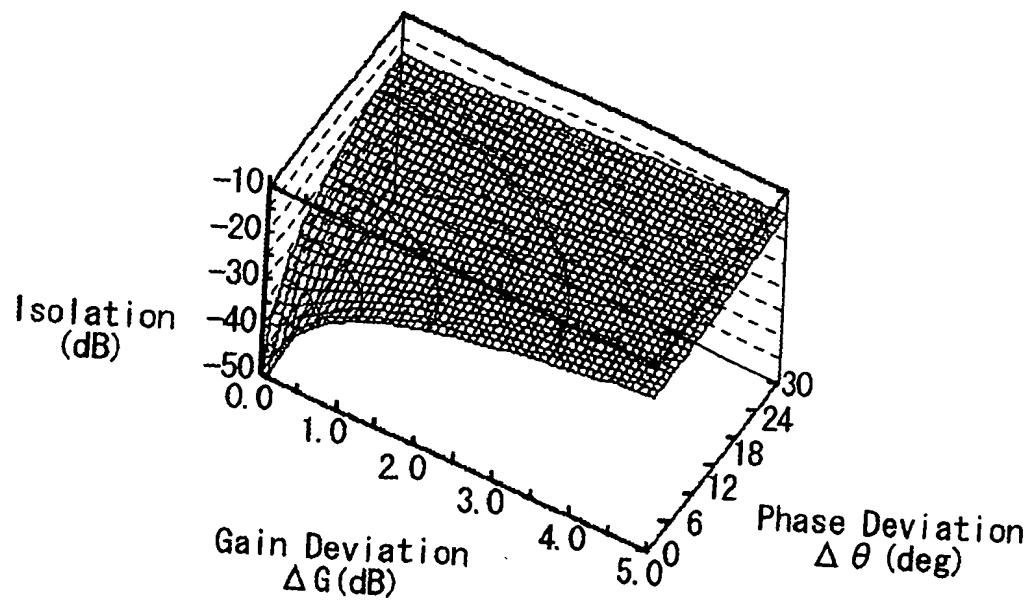


Fig. 5
PRIOR ART

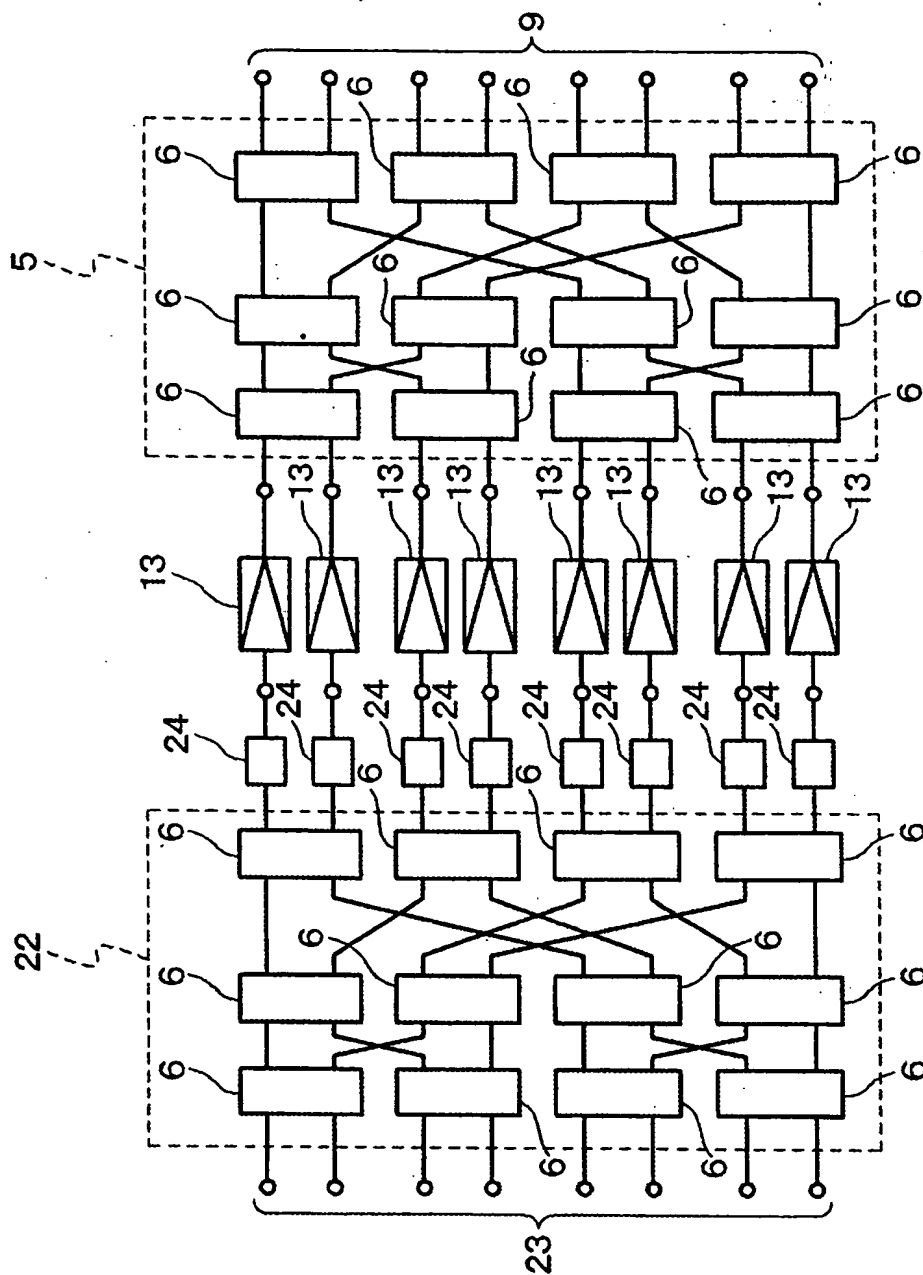
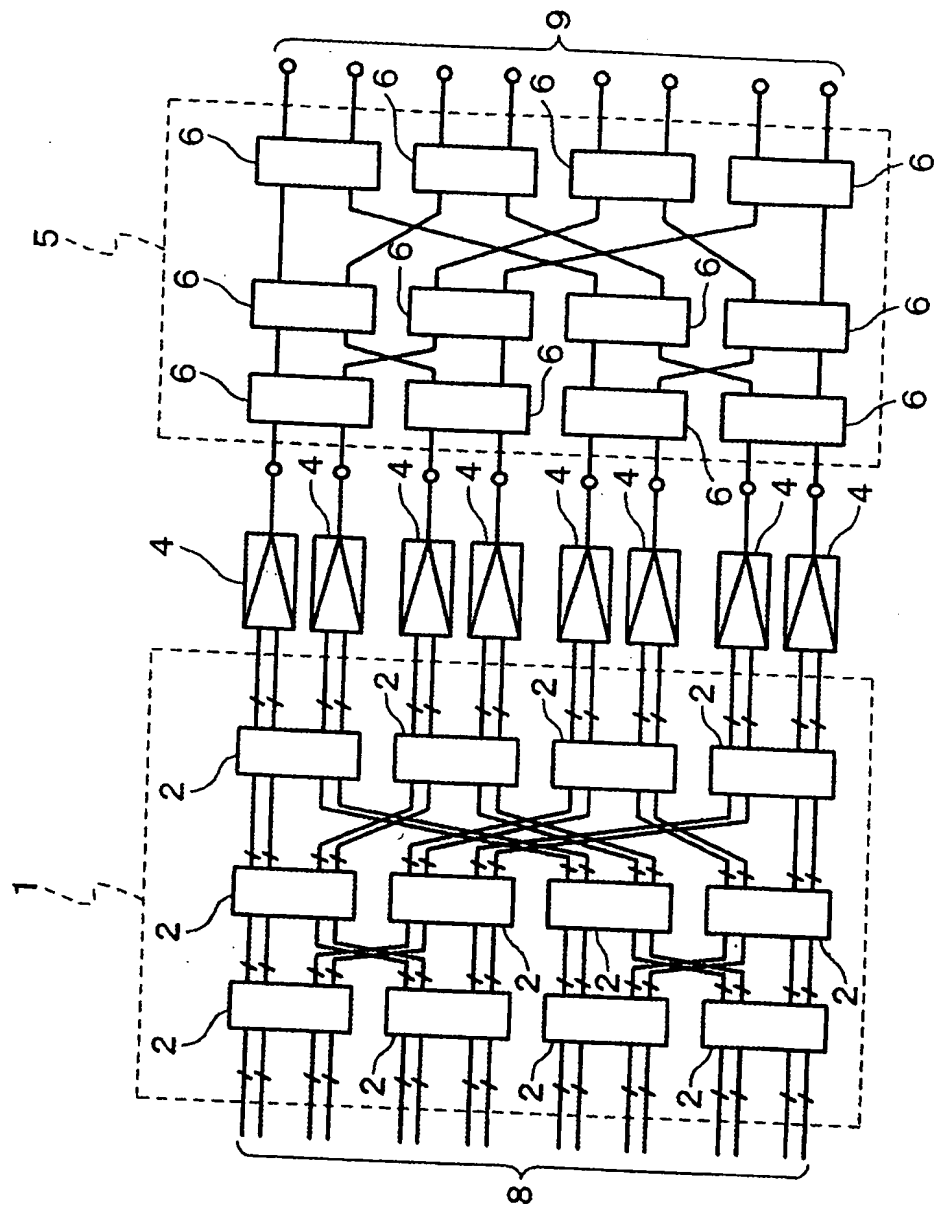
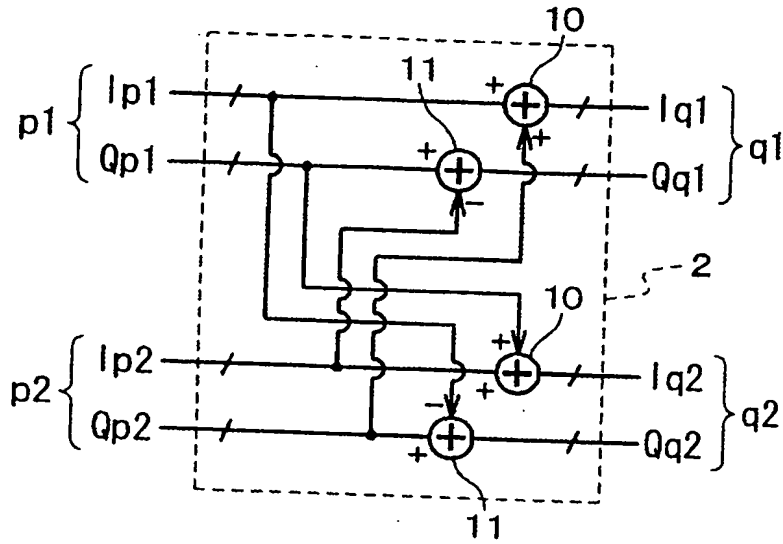


Fig. 6



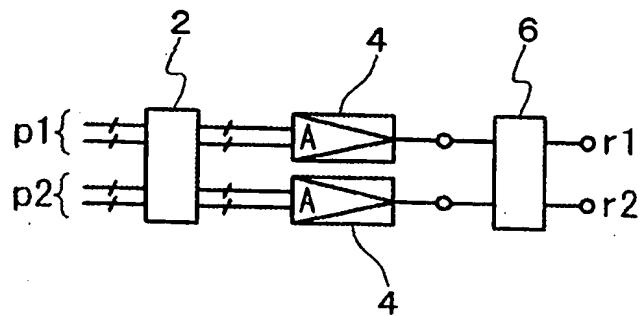
F i g . 7



$$e^{-j90^\circ} = \cos(-90^\circ) + j \sin(-90^\circ) = -j \quad \dots (1)$$

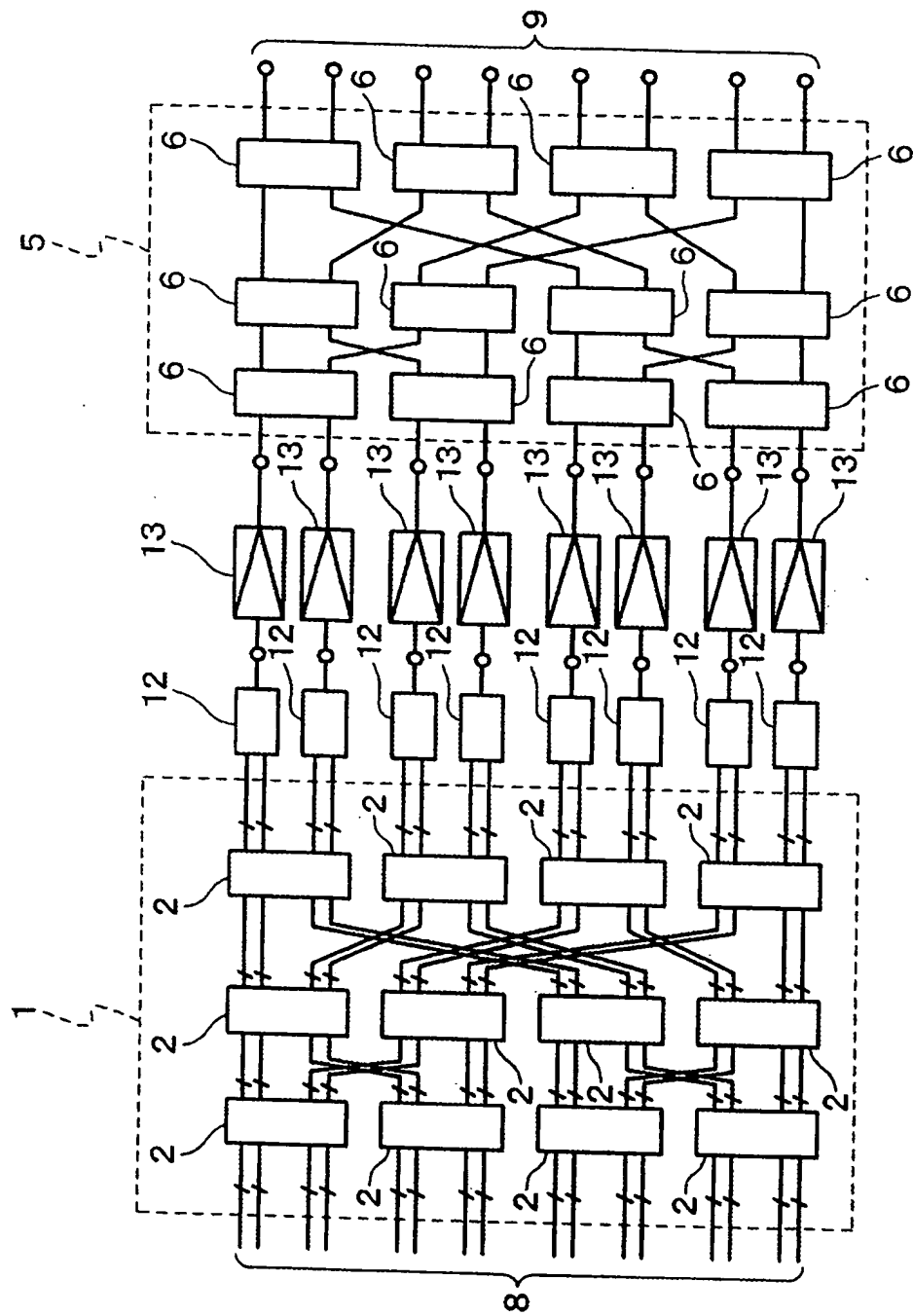
$$\begin{pmatrix} I' \\ Q' \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix} \begin{pmatrix} I \\ Q \end{pmatrix} = \begin{pmatrix} Q \\ -I \end{pmatrix} \quad \dots (2)$$

F i g . 8

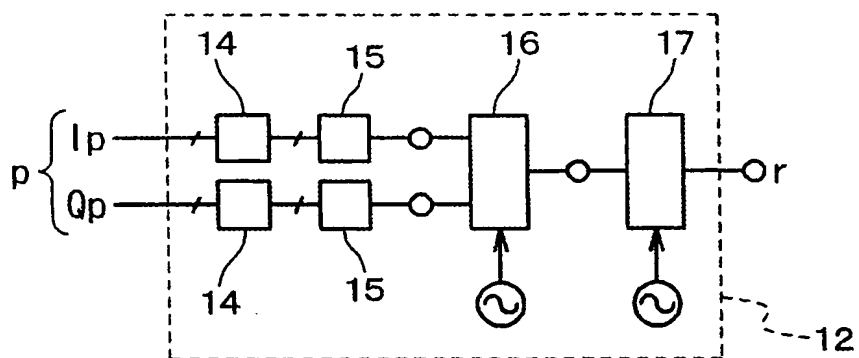


$$\begin{pmatrix} r1 \\ r2 \end{pmatrix} = \underbrace{\frac{A}{\sqrt{2}} \begin{pmatrix} 1 & -j \\ -j & 1 \end{pmatrix}}_{\text{output side matrix}} \underbrace{\begin{pmatrix} 1 & -j \\ -j & 1 \end{pmatrix}}_{\text{input side matrix}} \begin{pmatrix} p1 \\ p2 \end{pmatrix} = -jA\sqrt{2} \begin{pmatrix} p2 \\ p1 \end{pmatrix} \quad \dots (3)$$

Fig. 11



F i g . 1 2



F i g . 1 3

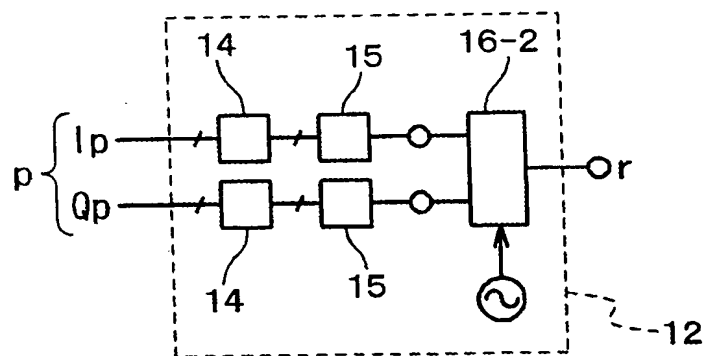
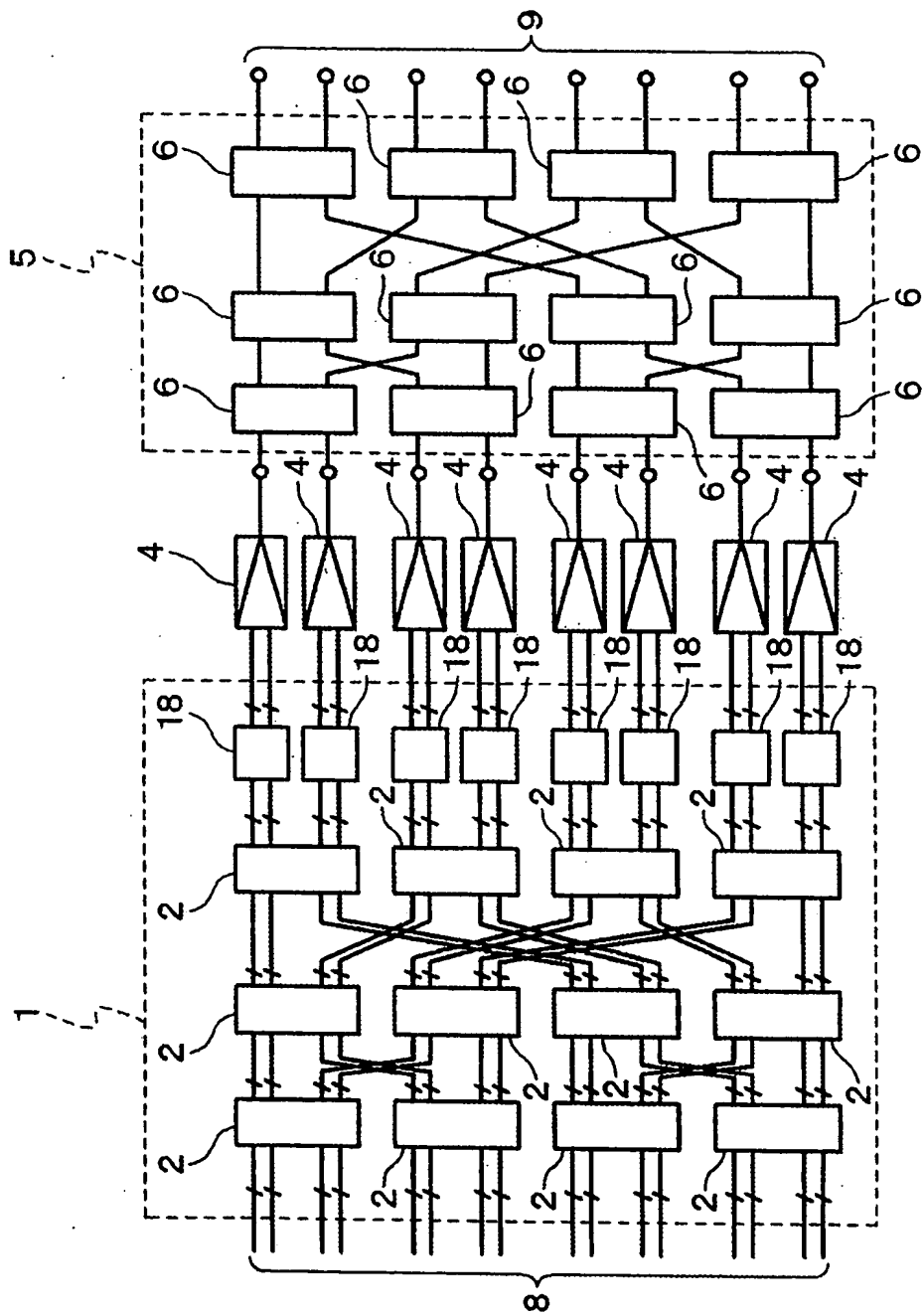
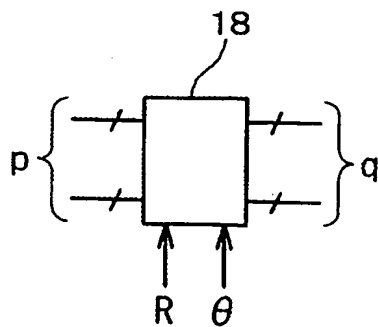


Fig. 14



F i g. 1 5



F i g. 1 6

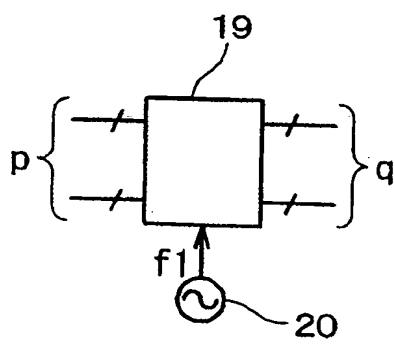


Fig. 17

